Observations of Birds on Islands in Northern Fog Bay, Northern Territory

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Abstract

A total of 74 species was recorded for small islands in northern Fog Bay, mostly during the dry seasons of 1995, 1996 and 1997. Large flocks of up to 2000 Lesser Frigatebirds flew over the islands each evening. Four nests of the Beach Stone-curlew were found on Quail Island, representing the first fully documented breeding records for the Northern Territory. The Sooty Oystercatcher, generally scarce in the Territory, nested on three islands during the study period, though this species is generally considered a spring-summer breeder. Two nesting colonies of Crested Terns, each with 160–200 eggs, were found in May 1996, but both were apparently destroyed by tidal inundation.

Introduction

The distribution, abundance and seasonality of birds in many parts of the Northern Territory remain poorly documented due to the paucity of observers. Major exceptions are the Darwin region (Crawford 1972; Thompson & Goodfellow 1987), Cobourg Peninsula (Frith & Hitchcock 1974) and north-eastern Arnhem Land (reviewed in Gambold *et al.* 1995). Avifaunal surveys have recently been conducted on many of the large islands off the coast of the Northern Territory (Fensham & Woinarski 1992; Fisher *et al.* 1996; Noske *et al.* in press) but little is known about the avifauna of small islands close to Darwin. Broadscale surveys of feeding areas and breeding colonies of shore-, water- and sea-birds in coastal areas and islands of the Northern Territory are currently being conducted by the Parks and Wildlife Commission of the Northern Territory (R. Chatto, unpubl. data). This paper documents opportunistic observations of some species of birds from several islands in northern Fog Bay, and includes a bird list for the area.

Study sites and methods

Bare Sand Island (12° 31' S, 130° 26' E) is the seventh of eight ironstone islands in northern Fog Bay which extend north of the mainland, 50 km west of Darwin (see map in Whiting 1997). It is approximately 20 ha in

area, and composed of sand dunes with low shrubs and four trees (three Coastal She-oaks *Casuarina equisetifolia* and one Black Wattle *Acacia auriculiformis*). Quail island (12° 32' S, 130° 25' E) is the eighth island in the chain and has a larger area (200 ha) and higher relief than Bare Sand Island. It supports several different habitats, including large expanses of grassland (Plate 5), small pockets of monsoon vine thicket and some fringing mangroves.

Djedjelbity Islet is located between, and slightly to the east of, Bare Sand and Quail Islands. It is approximately the size of Bare Sand Island and is comprised of rock to the east, mangroves to the west, and sand and low vegetation in the middle. These islands are about 12 km from the mainland. Middle Reef (12° 28′ S, 130° 31′ E) is located 10 km north-east of Quail Island and 7 km west of Cox Peninsula, and comprises an intertidal reef flat and a semi-permanent sand bank, which is totally submerged at spring high tides, but approximately 0.1 ha in area at a tide height of 7 m.

SDW visited Bare Sand and Quail Islands for 29 days during June and July 1996, and for 42 days from May to August 1997, accompanied by DD in May 1996, and RAN and MLG in July 1996. Middle Reef was visited in June and August 1996 (SDW). On several occasions between 1990 and 1996 RC visited Bare Sand and Quail Islands, as well as Windir Island which is located between Grose and Beer Eetar Islands, 5 km south of Bare Sand Is, and 5 km from the mainland.

Results

A total of 74 bird species was recorded from the islands during this period. This included 52 species from Bare Sand Island, 46 from Quail Island, and 26 from Djedjelbity Islet. Although Quail Island is larger and has a greater diversity of habitats than Bare Sand Island fewer species were recorded from the former, probably largely due to the greater time spent on the latter. Appendix 1 lists the species and their scientific names. In the following section we provide details of observations of species that are scarce in the Darwin region, or for which nesting or other behavioural data are scant for the Northern Territory.

Lesser Frigatebird

Each evening from approximately 16:30 until dark at 19:00, Lesser Frigatebirds arrived in the vicinity of Bare Sand or Quail Island in a continuous stream from the south and west. They soared on thermals, usually over 100 m in altitude. In 1996 they either formed one group over one of the islands or separate groups over Quail and Bare Sand Islands. In 1997 they sometimes formed a group over the smaller Djedjelbity Islet.

Flocks of between 500 and 2000 were recorded, but most were of about 1000 birds. Although it is possible that other Frigatebird species were occasionally present, the vast majority was certainly of this species.

The Lesser Frigatebird is an uncommon visitor to Darwin, where flocks of up to 35 birds have been reported, mostly during, or following, stormy weather in the wet season (McKean & Gray 1973; McKean *et al.* 1975). Similar behaviour has been reported during cyclones in Queensland (Lindsey 1987). The flocks in Fog Bay were larger than previously reported for non-nesting aggregations in northern Australia. Groups of less than 30 *Fregata* spp have been recorded in the northern Great Barrier Reef (Warham 1962). In Fog Bay the Frigatebirds presumably roosted in the mangroves as elsewhere this species is known to soar over roost sites for hours in the late afternoon before landing (del Hoyo *et al.* 1992). The species does not breed in Northern Territory waters (R. Chatto, unpubl. data), and the nearest breeding colony to Fog Bay is Ashmore Reef, 800 km to the west (Marchant & Higgins 1990).

PLATE 5 Grassland habitat on Quail Island. (S. D. Whiting)

Great-billed Heron

A pair of Great-billed Herons was regularly seen on Quail Island in both 1996 and 1997. The birds were often seen roosting in the same tree during 1996 and would invariably fly to nearby Djedjelbity Islet when disturbed. As three birds were seen together on 5 August 1997 (RC) it is possible that the pair had bred, and that the third bird was their offspring.

The status of the Great-billed Heron in the Northern Territory is poorly understood. It is thought to have a continuous range across the Top End but there are few published records between Darwin and the Western Australia – Northern Territory border (Blakers *et al.* 1984). Storr (1977) claimed that the species breeds in December and January in the Northern Territory, yet published records show that the breeding season in monsoonal Australia incorporates the dry season. In large estuaries of the Kimberley region, Western Australia, where the species is moderately common, a nest with one large young was found on 8 May 1986, and another two empty, but fresh, nests in May 1966 and July 1973 (Johnstone 1990). McLennan found a nest with one "fully-fledged young" on the west coast of Cape York on 7 July 1915 (White 1917: 212). With only one breeding record for the species during the five years of the 1977-82 Field Atlas (Blakers *et al.* 1984), it would be worthwhile determining if breeding occurs in Fog Bay.

Beach Stone-curlew

Beach Stone-curlews were observed on the beaches of Quail Island, Bare Sand Island and Djedjelbity Islet. Breeding was noted only on Quail Island where groups of up to eight individuals were occasionally seen, though pairs were more usual. During 1996 and 1997 four nests were found in open grassy areas behind the first dune on the western and northern sides of the island, by following the tracks of Stone-curlews along well-used paths leading from the beach to the nest. Nests usually comprised a collection of a few dried roots and sticks (Plate 6).

In 1996, on the western side of the island, a nest contained an egg on 24 June and 12 July, but was empty by 10 August, when another nest with one egg was found nearby. A third nest with one egg was observed on the northern end of the island on 12 July 1996. On 24 June 1997 a nest with one egg was observed only 100 m from the first nest of the previous year. Although the nest construction was similar to the others, this one was built under the shade of a large spreading tree. Five Stone-curlews were observed in the branches directly above the nest. No hatchlings or fledgings were observed on the island in either year.

The species was regularly heard during the night, and observed during the early morning, on Bare Sand Island. Up to three birds were also regularly seen on the northern beaches of Fog Bay. On 24 September 1996 a Beach Stone-curlew chased a goanna *Varanus panoptes* from behind the first sand dune and down onto the intertidal area until the goanna retreated under beach rock. Such aggressive behaviour may have been in defence of a nest.

The Beach Stone-curlew is considered vulnerable in Australia with a national population size estimated at approximately 1000 individuals (Garnett 1993), although recent surveys of previously unexplored parts of the Northern Territory coast suggest that this is an underestimate (Fisher *et al.* 1996; R. Chatto, unpubl. data). Counts made on Quail Is, combined with sightings from other islands and from the beaches along the mainland, suggest that at least 25 individuals occur in northern Fog Bay. Group sizes on Quail Is were large compared to those reported along the northern Great Barrier Reef (Warham 1962) and elsewhere in the Northern Territory (R. Chatto, unpubl. data). As there is some evidence that this (and other bird) species feeds on hatchlings of the Flatback Turtle *Natator depressus*, it is possible that these larger groups represent feeding aggregations.

PLATE 6 Nest and egg of Beach Stone-curlew, Quail Island. (R. A. Noske)

The four breeding records of Beach Stone-curlews on Quail Island over two consecutive years are significant as there were only 15 documented breeding records for Australia up until 1992 (Marchant & Higgins 1993). Breeding at Fog Bay accords with the July-August breeding season of the species reported for the Kimberley coast of Western Australia (Storr 1980), though it started somewhat earlier (June) in both years. However, it is inconsistent with information in Marchant & Higgins (1993), who report Nest Record Scheme records of eggs in mid-September and early October in the Northern Territory.

Sooty Oystercatcher

Up to eight Sooty Oystercatchers of the distinctive "spectacled" race *ophthalmicus* were regularly observed on Bare Sand and Quail Islands, and on irregular visits to Djedjelbity Islet. On 17 August 1995 one nest was found on each of the two main islands, one with a single egg and the other with two eggs (RC). On 23 June 1996 a nest with one egg was observed behind the first dune on the southern beach of Quail Island (SDW). All nests consisted of a small depression in sand (Plate 7).

Three nests were seen in 1997. On the southern end of Quail Island a nest containing one egg was found on 23 June (SDW), while a second nest, possibly belonging to the same pair, was found on 5 August, and contained two eggs (RC). A third nest, containing two eggs, was found on Djedjelbity Islet on 17 July (SDW). On the northern end of Bare Sand Island an adult bird displayed defensively towards humans every day during the second week of July. Nesting was suspected, but a search for the nest was not conducted. No hatchlings or fledgings were observed on any of the islands.

Sooty Oystercatchers are generally scarce along the Northern Territory coastline, and moreso in the western half, including Darwin (Crawford 1972; Thompson 1977; Shurcliff 1993). The breeding months of June-August at Fog Bay are at variance with the only other published breeding record in the Northern Territory, which refers to a nest with two eggs on Maine Island (near Cape Stewart) on 17 September 1915 (White 1917). A nest with one egg was found on one of the Sir Edward Pellew Islands on 29 September 1994 (R. Chatto, unpubl. data). Marchant & Higgins (1993: 745) claimed that breeding in Australia occurs from "October to January, rarely February". Given that the clutch is usually two eggs and "occasionally one" (Marchant & Higgins 1993: 745) it is interesting that three of the six clutches at Fog Bay were of a single egg, though it is possible that one or more were incomplete.

Pied Oystercatcher

Pied Oystercatchers formed larger aggregations than Sooty Oystercatchers, with which they were sometimes seen. On 1 July 1997 15 Pied and five Sooty Oystercatchers were observed roosting and flying together. Nesting of the former was observed in 1995, 1996 and 1997, on Quail Island only (SDW). Nests comprised a small depression in bare sand, similar to those of the Sooty Oystercatcher.

In 1996 three nests of the Pied Oystercatcher were found in the south-western portion of the island between 23 June and 14 July. One nest contained a single egg, while the other two had two eggs. On 23 June 1997

two nests were found in the south-eastern portion of the island; both had single eggs. No hatchlings or fledglings were observed.

The Pied Oystercatcher is common along the Northern Territory coastline (Crawford 1972; Storr 1977) but documented breeding records are scarce. Storr (1977) reported breeding in the Northern Territory during January, June and July, the latter months consistent with our data. However RC has three records of nests and eggs in September-October. As with the Sooty Oystercatcher the usual clutch is two eggs (Marchant & Higgins 1993), so it is intriguing that three of the five nests in Fog Bay contained single eggs, albeit possible that they were incomplete clutches.

Crested Tern

Crested Terns often roosted on Bare Sand and Quail Islands and Middle Reef, and during 1996 breeding was recorded at two sites. Approximately 200 eggs (presumably belonging to 200 pairs or nearly so) were counted on a sand-bank 1 km south of Bare Sand Island on 25 May (DD), and 160 eggs on a sand-bank at Middle Reef on 1 June (SDW). Courtship behaviour and fish-offering displays were observed. At both sites eggs were laid directly on the sand, in positions vulnerable to the tide. The mean length and width (± sd) of eight eggs, measured *in situ*, were 60.3 mm (± 0.31) and 41.9 mm (± 0.15), respectively.

An inspection of the sand-bank off Bare Sand Island on 3 June 1996, nine days after the discovery of the colony, revealed only stranded debris above the elevation of the colony, indicating that the eggs had been washed away by the high spring tides. Although White-bellied Sea-Eagles had been observed eating eggs on two occasions prior to this date, it is unlikely that their predation could result in the disappearance of 200 eggs within eight days. On a return visit to Middle Reef on 3 June, two days after the first visit, eggs were found only among debris along the strand-line of the last high tide. There was no evidence of nesting on the sandbank near Bare Sand Island in June or July 1997, when up to 400 birds were seen on the western beach of the Island. Middle Reef was not checked during this period.

In the Northern Territory most breeding colonies of the Crested Tern are situated on islands off Arnhem Land. Only two colonies have been found west of 134° E: one on Sandy Island off Cobourg Peninsula (Frith & Hitchcock 1974), and the other on Seagull Island, just north of Melville Island (R. Chatto, unpubl. data), about 250 km and 150 km from Fog Bay, respectively. The timing of breeding at Fog Bay is consistent with the May-July season reported for these and other colonies (Frith & Hitchcock 1974;

R. Chatto, unpubl. data). The failure of the colonies at Fog Bay, and the lack of other breeding records, despite extensive surveys of the region over the five years prior to 1996 (R. Chatto, unpubl. data), suggest that the birds were young and/ or inexperienced breeders, possibly derived from the abovementioned colonies. The dimensions of the measured eggs closely resemble those of other populations (Higgins & Davies 1996).

Black-naped Tern

Although Black-naped Terns were sighted during the present study, there was no evidence of them breeding. However during December 1989 Guinea & Ryan (1990) recorded nesting on Bare Sand Island. This is consistent with records from islands off the eastern coast of the Northern Territory, where the species typically breeds from August to January (Fisher *et al.* 1996; R. Chatto, unpubl. data). Our observations from Fog Bay apparently represent the most westerly records for this species in Australia. The nearest breeding colony to Fog Bay is on an island off Cobourg Peninsula (R. Chatto, unpubl. data).

Little Tern

An adult Little Tern was seen feeding a begging juvenile on Bare Sand Island on 21 December 1992 (RC). On 3 September 1995 at least 10 adults defended an area of sand and shale in the middle of the south end of the island (RC). These observations indicate that Little Terns, occasionally at least, nest on the island during the late dry-early wet seasons. Although Crawford (1972) and Storr (1977) described this species as a summer visitor to the Northern Territory from the Palearctic region only, recent surveys have confirmed that populations, probably belonging to a different race, breed at many sites around the Northern Territory coast in most months of the year, especially during May- July and September- November (R. Chatto, unpubl. data).

Little Corella

Groups of up to 20 Little Corellas frequently visited Bare Sand and Quail Island at various times of the day, including midday, presumably having travelled at least 10 km from the mainland. Birds were observed feeding on seeds from Dodder Laural *Cassytha filiformis* and coastal grasses and herbs. In May 1996 two Corellas picked at items as they walked along the one-hour old strandline on the southern end of the beach at Bare Sand Island.

Little Corellas are known to move daily to and from feeding areas in the early morning and late afternoon (Lendon 1973; Harman 1981), but we know of no documentation of daily movements to offshore islands, or of

feeding activity during the middle of the day. As the above food plants also occur on the mainland it it possible that the islands provide additional, unknown resources.

PLATE 7 Nest and eggs of Sooty Oystercatcher, Quail Island. (S. Whiting)

Other species

A first-year immature Spotted Harrier, perched on a small tree on Quail Island on 12 July 1996, was identified by its boldy barred tail, lack of streaking on underparts, and lack of pale patch on the nape (the latter two features, characteristic of the juvenile Swamp Harrier *C. approximans*). This species is a scarce dry season visitor to the Darwin region (Crawford 1972; Storr 1977). The Rose-crowned Fruit-dove owed its occurrence on Quail Island to the presence of fruiting monsoon vine-thicket plant species. At least two pairs of each of the mangal-specialised passerines (Broad-billed Flycatcher, Mangrove Golden Whistler and Mangrove Grey Fantail) were seen on Djedjelbity Islet in mangals dominated by the Star Mangrove *Sonneratia alba* and Stilt Mangrove *Rhizophora stylosa* (RAN). This is typical habitat for these species in the Top End, though the latter two species are uncommon in the Darwin region (Noske 1996).

Of at least nine species of honeyeaters occurring on the adjacent mainland, only the Brown Honeyeater was present at the time of our visits. On Quail

Island it was abundant and occupied every available habitat, consistent with its high abundance and ubiquitousness on the Wessel Islands (Fisher *et al.* 1996). The occurrence of the Restless Flycatcher in grasslands on the Fog Bay islands is somewhat surprising given that the Top End race is generally associated with paperbark woodlands and other riparian vegetation, especially in the dry season (Crawford 1972; Storr 1977).

Three Black-faced Cuckoo-shrikes moving through grasslands on Bare Sand Island on 26 May 1996 (DD), and a small flock of six (and another two on Djedjelbity Islet) on 12 July 1996 (RAN) may have been on migration to Indonesia, though the main passage through Darwin occurs in May (McKean 1986). However Mathews (1914) noted small parties flying high over trees on Melville Island between May and November, suggesting movements over a longer period.

Concluding remarks

The present study was conducted wholly within the dry season so it is likely that wet season surveys to the area will succeed in adding bird species and breeding records. The Bynoe Harbour-Fog Bay area is possibly regionally significant for the Beach Stone-curlew. Quail Island would make an excellent site for the study of this species which has declined in Australia and other parts of its range from human disturbance and destruction of its beach habitat, as well as from predation by introduced mammals (Garnett 1993).

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APPENDIX 1 Birds of islands north of Fog Bay.

Species Name	Scientific Name	BS	QI	DI	WI	MR
Orange-footed Scrubfowl	*Megapodius reinwardt*		X			
Brown Booby	*Sula leucogaster*	X	X			X
Darter	*Anhinga melanogaster*		X			
Little Pied Cormorant	*Phalacrocorax melanoleucos*			X		
Pied Cormorant	*Phalacrocorax varius*		X			X
Australian Pelican	*Pelecanus conspicillatus*	X	X			X
Lesser Frigatebird	*Fregata ariel*	X	X	X		
White-faced Heron	*Egretta novaehollandiae*		X			
Little Egret	*Egretta garzetta*	X				
Eastern Reef Egret	*Egretta sacra*	N*	X	X		
Great-billed Heron	*Ardea sumatrana*		N?	X		
Striated Heron	*Butorides striatus*			X		
Nankeen Night Heron	*Nycticorax caledonicus*	X	X			
Black-necked Stork	*Ephippiorhyncus asiaticus*	X	X			
Osprey	*Pandion haliatetus*		X			X
Whistling Kite	*Haliastur sphenurus*		X			
Brahminy Kite	*Haliastur indus*	X	X	X		X

continued

APPENDIX 1 (continued) Birds of islands north of Fog Bay.

Species Name	Scientific Name	BS	QI	DI	WI	MR
White-bellied Sea Eagle	*Haliaeetus leucogaster*	X	X	X		X
Spotted Harrier	*Circus assimilis*		X			
Brown Goshawk	*Accipiter fasciatus*		X	X		
Australian Hobby	*Falco longipennis*		X	X		
Nankeen Kestrel	*Falco cenchroides*	X	X			
Bar-tailed Godwit	*Limosa lapponica*	X			X	
Whimbrel	*Numenius phaeopus*	X			X	
Eastern Curlew	*Numenius madagascariensis*	X	X		X	
Common Greenshank	*Tringa nebularia*	X			X	
Terek Sandpiper	*Xenus cinereus*	X				
Grey-tailed Tattler	*Heteroscelus brevipes*	X		X	X	
Ruddy Turnstone	*Arenaria interpres*	X	X		X	
Asian Dowitcher	*Limnodromus semipalmatus*				X	
Great Knot	*Calidris tenuirostris*	X			X	
Red Knot	*Calidris canutus*	X			X	
Sanderling	*Calidris alba*	X				
Red-necked Stint	*Calidris ruficollis*	X			X	
Curlew Sandpiper	*Calidris ferruginea*	X				
Beach Stone-curlew	*Esacus neglectus*	X	N	X		
Pied Oystercatcher	*Haematopus longirostris*	X	N		X	
Sooty Oystercatcher	*Haematopus fuliginosus*	N	N			
Pacific Golden Plover	*Pluvialis fulva*	X				
Grey Plover	*Pluvialis squatarola*	X	X		X	
Lesser Sand Plover	*Charadrius mongolus*	X	X		X	
Greater Sand Plover	*Charadrius leschenaultii*	X	X		X	
Silver Gull	*Larus novaehollandiae*	X	X		X	X
Gull-billed Tern	*Sterna nilotica*	X			X	
Caspian Tern	*Sterna caspia*	X	X		X	
Lesser Crested Tern	*Sterna bengalensis*	X	X			X
Crested Tern	*Sterni bergii*	N	X		X	N
Black-naped tern	*Sterna sumatrana*	N*	X			X
Common Tern	*Sterna hirundo*	X				
Little Tern	*Sterna albifrons*	N?				
Whiskered Tern	*Chlidonia hybridus*	X				
White-winged Black Tern	*Chlidonias leucopterus*	X	X			

continued

APPENDIX 1 (continued) Birds of islands north of Fog Bay.

Species Name	Scientific Name	BS	QI	DI	WI	MR
Rose-crowned Fruit Dove	*Ptilinopus regina*			X		
Little Corella	*Cacatua sanguinea*	X	X			
Rainbow Lorikeet	*Trichoglossus haematodus*	X				
Sacred Kingfisher	*Todirhamphus sanctus*		X			
Collared Kingfisher	*Todirhamphus chloris*	X	X	X		
Rainbow Bee-eater	*Merops ornatus*	X	X	X		X
Brown Honeyeater	*Lichmera indistincta*	X	X	X		X
Lemon-bellied Flycatcher	*Microeca flavigaster*		X	X		
Mangrove Golden Whistler	*Pachycephala melanura*			X		
Broad-billed Flycatcher	*Myiagra ruficollis*	X		X		
Restless Flycatcher	*Myiagra inquieta*	X	X	X		
Rufous Fantail	*Rhipidura rufifrons*			X		
Mangrove Grey Fantail	*Rhipidura phasiana*			X		
Northern Fantail	*Rhipidura rufiventris*		X			
Black-faced Cuckoo-shrike	*Coracina novaehollandiae*	X	X	X		
Olive-backed Oriole	*Oriolus sagittatus*			X		
White-breasted Woodswallow	*Artamus leucorhynchus*	X	X	X		X
Richard's Pipit	*Anthus novaeseelandiae*	X	X			
Chestnut-breasted Mannikin	*Lonchura castaneothorax*	X				
Mistletoebird	*Dicaeum hirundinaceum*		X	X		
Tree Martin	*Hirundo nigricans*	X				
Yellow White-eye	*Zosterops luteus*	X	X	X		
Total no. species		52	46	26	18	13

BS, Bare Sand Is; QI, Quail Is; DI, Djedjelbity Islet; WI, Windir Is; MR, Middle Reef; X, present; N, nesting; N?, nesting suspected; *, Guinea & Ryan (1990). Sequence follows Christidis & Boles (1994).